

## **MEETING SUMMARY**

### **Reactivity Research Advisory Committee (RRAC) March 1, 2001 Meeting**

The Reactivity Research Advisory Committee (RRAC) met on March 1, 2001, to discuss reactivity research needs in the area of architectural coatings at the Cal/EPA Headquarters Building, 1001 "I" Street, Sacramento, CA. Approximately 40 people attended the meeting, including 14 teleconference participants and several Air Resources Board (ARB) staff from the Research Division (RD) and Stationary Sources Division (SSD). Dr. Eileen McCauley (ARB-RD) chaired the meeting and briefly introduced the meeting purpose. Dr. Dongmin Luo (ARB-RD) gave a presentation on the basics of volatile organic compound (VOC) reactivity. The application of the reactivity concept to the ARB's aerosol coatings regulation was discussed by Carla Takemoto (ARB-SSD).

Dr. Bill Carter from the University of California, Riverside was invited to present his research proposal entitled "Evaluation of Atmospheric Impacts of Selected Coatings VOC Emissions." This comprehensive proposal suggests several important areas of uncertainties which need to be addressed. Due to limited funding, prioritization of the proposed tasks was discussed at the meeting, and it was agreed that two compounds, Texanol and a representative petroleum distillate, should be studied using smog chambers and a direct reactivity measurement method. Jim Nyarady (ARB-SSD) provided a list of the top ten compounds from ARB's survey of architectural coating VOCs with the participants, which emphasized that Texanol and petroleum distillates are the main chemicals of concern. Industry representatives volunteered that vinyl acetate, one of the top ten chemicals, is generally in polymer form and, as such, would not be volatile.

Following the presentations, additional research needs of architectural coatings were discussed, and they are summarized below.

#### **1) Investigate the atmospheric availability of architectural coating VOCs**

Dr. Dave Morgott (Eastman Kodak) pointed out that the U.S. EPA's Indoor Environmental Branch has studied VOC emission rates from coatings using chamber and modeling techniques for over ten years and provided a copy of the recently published articles. He suggested that the results be examined as part of Carter's proposal. Industry is interested in both the total availability issue (what percent of the total amount of each VOC is ultimately emitted to the atmosphere?), and the diffusion rate issue, since they think diffusion from coatings may be the rate-limiting step. Incorporation of this issue in the proposal would make it easier for Dr. Morgott to get additional funding from the American Chemical Council (ACC). *Note: Subsequent to the meeting, ARB staff requested Dr. Carter to provide his thoughts on this issue in writing. His response was that there is no significant*

*research need on the availability related to the proposed reactivity work at this time. Availability of the VOC in the atmosphere is a different issue, which should be addressed by others).*

## **2) Examine the compositional uncertainty in petroleum distillates**

- “Petroleum distillates 350” accounts for approximately 50% of total solvents used in architectural coatings (Wendoll/Dunn-Edwards). An appropriate petroleum distillate should be selected for this proposed project after consulting with ACC’s hydrocarbon solvent panel and manufacturers of coatings.
- Compositional uncertainty in petroleum distillates could be significant and a systematic analysis should be carried out (Carter/UCR)
- California Polytechnic State University – San Luis Obispo (Cal Poly-SLO) conducted a project entitled “*Improvement of Speciation Profiles for Architectural and Industrial Maintenance Coating Operations*” (Wills/Cal Poly-SLO). This study classified coating materials into eleven categories and obtained detailed species profiles for 106 samples of water- and solvent-based coating samples. Another related ongoing project by Cal Poly-SLO is to characterize solvents in consumer products including architectural coatings. The results should be coordinated with Dr. Carter’s proposal.

It was suggested that the next meeting should be held soon, before fall if possible.